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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/974,539	10/09/2001	Shiro Fujieda	OMRNP008	9058

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EXAMINER

LE, BRIAN Q

ART UNIT	PAPER NUMBER
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2624

DATE MAILED: 12/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/974,539

Applicant(s)

FUJIEDA, SHIRO

Examiner

Brian Q. Le

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 October 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☒ Claim(s) 10-11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Response to Amendment and Arguments

1. Applicant's amendment filed October 06, 2006, has been entered and made of record.
2. Applicant's arguments with regard to claims 1-11 have been fully considered, but are not considered persuasive because of the following reasons:

Regarding independent claims 1 and 4, the Applicant argues (page 5-6 of the Remarks) that Cohen U.S. Patent No. 6,337,925 does not teach the limitations "selecting said edge pixels sequentially one edge pixel at a time and comparing the direction of said one edge pixel with the direction of another of said edge pixels at a specified distance from said one edge pixel to obtain a comparison result" (claim 1) or similarly "comparing means for selecting said edge pixels sequentially one edge pixel at a time and comparing the direction of said one edge pixel with the direction of another of said edge pixels at a specified distance from said one edge pixel to obtain a comparison result" (claim 4). The Examiner respectfully disagrees. As explained in previous Office Actions, the limitations are still broad and thus are subjected to various interpretations. That was why the Examiner suggested to include the formula indicated in the specification, bottom of page 7, into independent claims to further indicate the distinction between the claiming language and Cohen's teaching. However, the Applicant does not include this into independent claims 1 and 4 but adding the formula as new claims depending on claims 1 and 4. Thus, the claims 1 and 4 are still rejected because the Examiner firmly believed that Cohen still teaches the limitations of claims 1 and 4. Also indicated in previous Office Actions, Cohen teaches "selecting said edge pixels sequentially one edge at a time ("...for each pixel in B, the process determines of column 10, lines 60-63) and comparing the direction of said one edge pixel with the direction of another of said edge pixels (the determine the weight properties of the

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processing pixel with pixels in the edge area involving direction as disclosed in column 10, lines 60-67) at a specified distance (estimated width disclosed at column 12, lines 55-67) from said one edge pixel to obtain a comparison result (to obtain weight position/properties results) (column 11, lines 1-30). The Examiner has agreed that the formula in the specification, bottom of page 7 of specification would distinguish the Applicant invention over Cohen's teachings. However, the current language still broad and thus resulted subjective interpretations by one skilled in the art. Thus, appropriate corrections are required for further considerations.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-2, and 4-6 are rejected under 35 U.S.C. 102(e) as being anticipated by Cohen U.S. Patent No. 6,337,925.

Regarding claim 1, Cohen teaches a method of inspecting a contour of a target object (abstract), said method comprising the steps of:
preparing a variable-density image of said contour (gradient calculation of pixels of image) (column 5, lines 19-33);
extracting edge pixels along and from said contour on said image (masked and extracted traced object) (column 7, lines 3-25 and column 8, lines 50-62);

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measuring directions of said edge pixels (column 4, 65-67 and column 5, lines 35-38), the direction of said edge pixels being defined as a direction that makes a specified angle (gradient angle) (column 5, lines 19-35) with the direction of the density gradient on said variable-density image at (value of pixel of gradient directions of each pixel) (column 5, lines 36-42), said each pixel;

selecting said edge pixels sequentially one edge pixel at a time (column 10, lines 60-67) (“...for each pixel in B, the process determines of column 10, lines 60-63) and comparing the direction of said one edge pixel with the direction of another of said edge pixels (column 19, lines 29-67) (the determine the weight properties of the processing pixel with pixels in the edge area involving direction as disclosed in column 10, lines 60-67) at a specified distance (estimated width disclosed at column 12, lines 55-67) at a specified distance (estimated width disclosed at column 12, lines 55-67) (FIG. 21, element 2125) from said one edge pixel to obtain a comparison result (to obtain weight position/properties results) (column 11, lines 1-30) (column 19, lines 26-65); and

determining presence or absence of a defect in said contour from the comparison results obtained for said edge pixels (The process of determining the opacities and confidence of edges) (column 19, lines 7-25 and column 20, lines 35-60).

Regarding claim 2, Cohen teaches the method comprising the step of selecting said specified distance (predetermined edge zone width) (column 19, line 50).

For claim 4, please refer back to claim 1 for the teachings and explanations.

Referring to claim 5, Cohen discloses the apparatus wherein said measuring means measures an angle for each of said edge pixels, said angle indicating a perpendicular direction to the direction of density gradient at said each edge pixel (column 14, lines 31-47).

For claim 6, Cohen also discloses the apparatus wherein said comparing means include distance setting means for setting said specified distance (column 19, lines 30-60).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 3 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cohen U.S. Patent No. 6,337,925 as applied to claim 1 above, and further in view of Shiohara U.S. Patent No. 6,343,158.

Regarding claim 3, Cohen discloses the usage of various extraction/masking techniques in the selection process (column 18, lines 41-51 and column 21, lines 57-65). However, Cohen does not explicitly discuss the selecting one from a plurality of edge-extraction filters each with a mask of a different size. Shiohara teaches an edge processing of images (abstract) utilizes the usage/selection of different filters (high and low frequency filters) with a mask of a different size (FIG. 14-FIG.15; column 2, lines 25-47; and column 6, lines 25-44). Modifying Cohen's method of processing edges of image according to Shiohara would be able to allow the flexibility in using different filters with a mask of a different size to better isolate/extract/filter the selected

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edge of the image. This would improve processing and therefore, it would have been obvious to one of the ordinary skill in the art to modify Cohen according to Shiohara.

Regarding claim 7, please refer back to claim 3 for the teachings and explanations.

7. Claims 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cohen et al. U.S. Patent No. 6,337,925.

Regarding claims 8-9, Cohen does not explicitly teach wherein said specified angle is 90 degree. However, Cohen teaches a specified angle at various degrees (column 11, lines 10-20 and FIG. 5). In addition, as discussed in the background of the invention, an angle can also be perpendicular (column 2, lines 10-15), which is specified at 90 degrees. Thus, it would have been obvious for one of the ordinary skilled in the art to specify the angle at 90 degrees to further distinguish the boundary between regions of pixels (column 2, lines 5-15) or for other purpose in inspecting the contour of target object. This would improve processing and therefore, it would have been obvious for one skilled in the art to modify Cohen.

Allowable Subject Matter

8. Claims 10-11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Contact Information

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Q. Le whose telephone number is 571-272-7424. The examiner can normally be reached on 8:30 A.M - 5:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jingge Wu can be reached on 571-272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BL
December 4, 2006

JINGGE WU
PRIMARY EXAMINER

